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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/669,913	09/24/2003	Hwa Jeong Lee	CU-3369 RJS	5770

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LADAS & PARRY LLP
224 SOUTH MICHIGAN AVENUE
SUITE 1600
CHICAGO, IL 60604

EXAMINER	
GOKHALE, SAMEER K	
ART UNIT	**PAPER NUMBER**
2629	

DATE MAILED: 05/04/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/669,913	LEE ET AL.	
	Examiner	Art Unit	
	Sameer K. Gokhale	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 September 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-4* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-4 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 1-4, Claim 1 recites the phrase, "...thus changing a range of a contrast ratio according to the changed reference voltage values when a command changing a reference voltage value is transferred to the digital/analog converter" on lines 17-20. The phrase renders the claims indefinite because it is unclear whether the phrase is merely indicating the result of the previously recited features of the claim, by use of the term "thus", or if it is introducing additional features into the claim, such as the recited term "command" which is not mentioned previously in the claim.

In light of the above rejection under 35 U.S.C. 112, the following rejections are based the claims as best understood by the examiner.

Double Patenting

3. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140

F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

4. Claims 1-4 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 2 of U.S. Patent No. 6,844,839 ("the '839 patent"). Although the conflicting claims are not identical, they are not patentably distinct from each other because the subject matter claimed in the instant application is fully disclosed in the patent and is covered by the patent since the patent and the application are claiming common subject matter, as follows:

Comparison of claims 1-4 of instant application to claims 1, 2, 4, and 5 of the '839 patent.

Instant Application S/N: 10/669913	***US Patent No: 6,844,839***
1. A liquid crystal display device comprising:	**1.** A reference voltage generating circuit for a liquid crystal display, the reference voltage generating circuit comprising:
an analog voltage signal generator for storing an input synchronous signal and a plurality of input digital data signal in response to a write enable signal, and converting the stored digital data signal into a plurality of analog voltage signal pairs in response to an output enable signal;	an analog voltage generating means for pre storing a synchronizing signal and digital data signals inputted from outside in response to a write-enable signal, and converting the stored digital data signals into multiple sets of analog voltage signal pairs in response to an output-enable signal;...
a plurality of reference voltage generators for dividing a boosted source voltage according to the analog voltage signal pairs from the analog voltage signal generator to generate a plurality of reference voltages;	...a plurality of fixed reference voltage generating means for voltage-distributing a boosted source voltage, so as to output a plurality of fixed reference voltage signals respectively;
and a source driver integrated circuit for	and a source-driver integrated circuit for

receiving the plurality of reference voltages from the plurality of reference voltage generators,	receiving the variable reference voltage signals and the fixed reference voltage signals.
	2. A reference voltage generating circuit as claimed in claim 1, wherein the analog voltage generating means comprises:
wherein a digital/analog converter of the analog voltage signal generator changes a reference voltage value and outputs a changed reference voltage value to the reference voltage generators, thus changing a range of a contrast ratio according to the changed reference voltage values when a command changing a reference voltage value is transferred to the digital/analog converter.	....a digital-analog conversion section for converting the digital data signals into respective analog signals in response to a synchronizing signal of the data store section when the output-enable signal is generated;

2. A liquid crystal display device as claimed in claim 1, wherein the analog voltage signal generator includes:	**2.** A reference voltage generating circuit as claimed in claim 1, wherein the analog voltage generating means comprises:
a data storage section for storing the input synchronous signal and the plurality of input digital data signals in response to the write enable signal;	a data store section for storing the synchronizing signal and the digital data signals inputted from outside in response to the write-enable signal;
the digital/analog converter for converting the plurality of input digital data signals stored in the data storage section into a plurality of analog signals in response to the input synchronous signal when the output enable signal is generated;	a digital-analog conversion section for converting the digital data signals into respective analog signals in response to a synchronizing signal of the data store section when the output-enable signal is generated;
and a buffer amplifier for amplifying the plurality of input analog signals and outputting the plurality of analog voltage signal pairs.	and a buffer amplification section for amplifying the analog signals converted by the digital-analog conversion section, and outputting the multiple sets of analog

	voltage signal pairs.
3. A liquid crystal display device as claimed in claim 2, wherein the data storage section stores a fixed reference voltage signal pair according to voltage-transmission factor curve feature, and the digital/analog converter changes the fixed reference voltage signal pair stored in the storage section in response to an external reference voltage change command and outputs a changed reference voltage.	**5.** A reference voltage generating circuit as claimed in claim 1, wherein the analog voltage signal pairs have gray voltage values corresponding to voltages between the maximum value and the minimum value of a voltage transmittance characteristic curve. and converting the stored digital data signals into multiple sets of analog voltage signal pairs in response to an output-enable signal;
4. A liquid crystal display device as claimed in claim 1, wherein the plurality of reference voltage generators include a plurality of resistors connected to each other in series between a power supply terminal and a ground	**4.** A reference voltage generating circuit as claimed in claim 1, wherein the variable reference voltage generating means has a plurality of resistors corresponding to analog voltage signal pairs, the resistors being connected

terminal for generating the plurality of reference voltages.	in series.

The differences between the claims are as follows:

Claim 1, lines 14 –20 of the instant application include the phrase "wherein a digital/analog converter of the analog voltage signal generator changes a reference voltage value and outputs a changed reference voltage value to the reference voltage generators, thus changing a range of a contrast ratio according to the changed reference voltage values when a command changing a reference voltage value is transferred to the digital/analog converter." This feature is not essential to the instant application because it would have been obvious that the digital/analog converter of the '839 patent has the same feature because on claim 1, col. 6, lines 2-4 of the '839 patent the analog voltage generating means, which is specified in claim 2 as a digital/analog converter, is "converting the stored digital data signals into multiple sets of analog voltage signal pairs in response to an output-enable signal", which is the same as changing a reference voltage value and outputs a changed reference voltage value to the reference voltage generators when a command changing a reference voltage value is transferred to the digital/analog converter. Additionally, the result of changing a range of a contrast ratio according to the changed reference voltage values is an inherent result of the claimed features of the '839 patent.

Claim 3, lines 4-7, of the instant application includes the phrase, "the digital/analog converter changes the fixed reference voltage signal pair stored in the

storage section in response to an external reference voltage change command and outputs a changed reference voltage." This phrase is similar to the phrase in claim 1 as discussed above and is similarly found in claim 1 of the '839 patent.

Claim 4, lines 3-5, of the instant application includes the phrase, "...a plurality of resistors connected to each other in series between a power supply terminal and a ground terminal...". This feature is not essential to the instant application because it would have been obvious that the resistors being connected in series in the '839 patent are connected between a power supply terminal and a ground terminal.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Matsueda et al. (US 6,380, 917) teaches a driving circuit that changes a reference voltage value and a contrast ratio by a digital/analog converter. Woo et al. (US 6,680,733) teaches an LCD with programmable DA converter. Kim (US 5,796,384) teaches a gamma correction circuit of a LCD. Yamaguchi et al. (US 6,222,515) teaches an apparatus for controlling the data voltage of a liquid crystal display unit to achieve multiple gray-scale that utilizes the write enable and output enable signals of the incoming signal.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sameer K. Gokhale whose telephone number is (571) 272-5553. The examiner can normally be reached on M-F 8:00 AM - 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amr Awad can be reached on (571) 272-7764. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SKG
April 26, 2006

Sameer Gokhale
Examiner
Art Unit 2629

AMR A. AWAD
PRIMARY EXAMINER